

WHAT IS CLAIMED IS:

1. A release agent fluid management system for a fuser apparatus of an image reproduction apparatus operating according to
5 predetermined operating parameters, said fuser apparatus having a heated surface that travels in a first direction and contacts a toner image on a substrate for fixing the toner to the substrate, said release agent fluid management system comprising:
a spray device, disposed transverse to the direction of travel of the
fuser heated surface, selectively operable to dispense release agent fluid to
10 selected regions on said heated surface of said fuser to prevent toner particles from adhering to said heated surface; and
a controller coupled to said spray device for controlling the operation thereof to adjust amounts of release agent fluid dispensed as a function of signals indicative of one or more image reproduction operating parameters.
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2. The release agent fluid management system of Claim 1, wherein said fuser is a heated roller or a heated belt.
3. The release agent fluid management system of Claim 1,
20 wherein said spray device includes an array of microspray nozzles disposed transverse to the path of said heated surface, each nozzle being adjustable as to the spray angle and time for operation.
4. The release agent fluid management system of Claim 3,
25 further comprising deflector bars at opposite ends of said array of microspray nozzles and operable to adjust the angle of the spray at the ends of said array.
5. The release agent fluid management system of Claim 3,
further comprising a reservoir for holding a supply of release agent fluid and a
30 source of pressurized air selectively connectable to said nozzles to atomize the release agent fluid.

6. A fuser apparatus, for an image reproduction apparatus, for fusing a toner image on a substrate fuser apparatus comprising:

a roller having a cylindrically shaped surface formed about an axis of rotation, the surface having a plurality of positions definable by angular position about the axis and measurement in an axial direction along the surface; and

a release agent fluid management system configured to controllably apply release agent fluid to said roller surface as a function of measurement along said roller surface in the axial direction, said release agent fluid management system including a selectively actuatable spray device, and a processor system coupled to said spray device for variably controlling the amount of fluid release agent applied to said roller surface as a function of signals indicative of one or more image reproduction operating parameters.

7. The fuser apparatus of Claim 6, wherein said release agent fluid management system includes an atomization air source configured to distribute selectable and differing amounts of release agent fluid upon different portions of said roller surface according to signals received from said processor system.

8. The fuser apparatus of Claim 6, wherein said release agent management system comprises a plurality of individually controllable microspray devices each configured to selectively apply release agent fluid to a portion of the fuser surface at a programmable selectable rate according to signals from said processor system.

9. The fuser apparatus of Claim 6, wherein said signals indicative of one or more reproduction operating parameters include data taken from the group consisting of substrate dimension, substrate type, image density, image position, one or two sided printing, fuser temperature and release agent viscosity.

10. The fuser apparatus of Claim 6, wherein said release agent fluid management system is configured to controllably apply release fluid among positions on said roller surface as a function of angular position about the axis of said roller surface and along said roller surface in the axial direction.

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11. The fuser apparatus of Claim 6, wherein variation in release agent fluid application to said roller surface by said processor system is synchronized with movement of said substrate relating to said roller surface.

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12. The fuser apparatus of Claim 6, wherein said processor system varies the amount of release agent fluid applied to portions of roller surface as a function of the amount of toner in an image reproduction coming into contact with each such roller surface portion.

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13. The fuser apparatus of Claim 6, wherein said roller is a fuser roller.

14. The fuser apparatus of Claim 6, wherein said roller is positioned to apply release agent fluid directly to a heated fuser member of said fuser apparatus.

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15. The fuser apparatus of Claim 6, further including a heating roller rotatable about its axis of rotation, and an endless belt positioned to move about such axis with rotation of said heating roller.

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16. A method for controlling application of release agent fluid in an image reproduction system, reproducing a toner image as a substrate, having a fuser including a surface formed about an axis of rotation, such surface having a plurality of positions definable by an angle of rotation about the axis and

5 measured in an axial direction along the surface, comprising the steps of:

spraying a variable amount of the release agent fluid onto the fuser;

and

varying the amount of release agent fluid sprayed onto the fuser surface in response to one or more image reproduction operating parameters.

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17. The method of Claim 16, wherein said step of varying the amount of release agent fluid is responsive to one or more reproduction operating parameters taken from the group consisting of substrate dimension, substrate type, image density, image position, one or two sided printing, fuser temperature and

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release agent viscosity.

18. The method of Claim 16, wherein said step of varying the amount of release agent fluid includes synchronizing the amount of release agent fluid applied to portions of the fuser surface with movement of the substrate.

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19. The method of Claim 16, wherein said step of varying the amount of release agent fluid includes controlling the amount of release agent fluid applied to portions of the fuser surface as a function of the amount of toner in an image reproduction coming into contact with each such surface portion.

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